

Claims

1. An invasome comprising:

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- a) a lipid mixture comprising one or more lipids and one or more lysophosphatides, where the proportion of lysophosphatides in the lipid mixture is in the range from 0.1 to 40% by weight; and
- b) at least one pharmacological agent.

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2. The invasome as claimed in claim 1, where the lipids are selected from the group consisting of neutral lipids, anionic lipids and a mixture of neutral and anionic lipids.

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3. The invasome as claimed in claim 2, where the proportion of neutral or anionic lipids or a mixture of neutral and anionic lipids in the lipid mixture is in the range from 40 to 99.9% by weight.

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4. The invasome as claimed in claim 1, where the invasome comprises the lipid mixture and the pharmacological agent in a ratio of from 1:1 to 1 000:1, preferably from 2:1 to 100:1, by weight.

5. The invasome as claimed in claim 1, where the invasome has a diameter of from 30 to 400 nm.

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6. The invasome as claimed in claim 1, where the lipid mixture is obtained from sources selected from the group of soybeans, cotton seeds, coconut kernel, peanut, safflower seeds, sesame seeds, sunflower seeds, linseeds, oilseed rape, wheatgerms, olives, whale fat, stratum corneum lipid, neatsfoot oil and egg.

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7. The invasome as claimed in claim 1, where the proportion of neutral lipids in the lipid mixture is in the range from 75 to 95% by weight.

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8. The invasome as claimed in claim 1, where the neutral lipids are selected from the group consisting of glycerophospholipids, in particular phosphatidyl-

cholines, steroids, glycerophosphonolipids, glycerophosphinolipids and sphingolipids.

9. The invasome as claimed in claim 1, where the lysophosphatides are
5 selected from the group consisting of lysophosphatidylcholines, lysophosphatidyl-
ethanolamines, lysophosphatidylinositol, monolysocardiolipin, dilysoocardiolipin
and lysophosphatidylserines.

10. The invasome as claimed in claim 1, where the invasome comprises one or
10 more terpenes.

11. The invasome as claimed in claim 10, where the terpene is selected from
the group consisting of cineol, citral, limonene, in particular D-limonene,
menthane, terpinene, terpinolene, menthol, in particular 1-menthol, carveol, in
15 particular 1-carveol, menthone, carvone, pinene, in particular β -pinene, carene, in
particular 3-carene, terpineol, terpinen-4-ol, pulegone, piperitone, cyclohexane
oxide, limonene oxide, pinene oxide, cyclopentene oxide, ascaridol,
7-oxybicyclo[2.2.1]heptane, cymene, camphene, citronellol, geraniol, nerol,
linalool, borneol, thujol, sabinol, myrtenol, thymol, verbenol, fenchol, piperitol,
20 perillaaldehyde, phellandral, citronellal, myrtenal, piperitone, thujone,
umbellulone, verbenone, chrysanthenone, fenchone, camphor, quinone,
menthofuran, linalool oxide, rose oxide and qinghaosu.

12. The invasome as claimed in claim 1, where the pharmacological agent is
25 selected from the group consisting of an immunosuppressant, an immunostimulant,
an antiallergic, an antibiotic, an antiinfective, a cytostatic, a cytotoxic agent, a
mitogen, a chemokine, a cytokine, a dermotic and a physiological or
pharmacological inhibitor of a mitogen, of a chemokine or of a cytokine.

30 13. The invasome as claimed in claim 12, where the immunosuppressant is
selected from the group consisting of a glucocorticoid, in particular
beclomethasone, betamethasone, clocortolone, cloprednol, cortisone,
dexamethasone, fludrocortisone, fludroxcortide, flumetasone, fluocinolone
35 acetonide, fluocinonide, fluocortolone, fluorometholone, fluprednidene acetate,
hydrocortisone, paramethasone, prednisolone, prednisone, prednylidene,
pregnenolone, triamcinolone or triamcinolone acetonide, a cyclosporin, in
particular cyclosporin A, mycophenolate mofetil, tacrolimus, rapamycin, FK 506,

cycloheximide-N-ethyl ethanoate, azathioprine, ganciclovir, an anti-lymphocyte globulin, ascomycin, myriocin, pharmacological inhibitors of MAP kinases and methotrexate.

5 14. The invasome as claimed in claim 1, where the pharmacological agent is selected from the group consisting of a nucleic acid, a protein, a peptide, a sugar and a lipid.

10 15. The invasome as claimed in claim 14, where the nucleic acid is selected from the group consisting of an antisense oligonucleotide, an antisense RNA, an RNAi, an siRNA and an oligonucleotide which forms a triple helix.

15 16. A method for preparing an invasome as claimed in claim 1, characterized in that the lipid mixture is mixed with at least one pharmacological agent.

20 17. A medicament comprising an invasome as claimed in claim 1 and suitable excipients and additives.

18. A method for using an invasome as claimed in claim 1 for the therapy of a skin disorder.

25 19. The method as claimed in claim 18, where the skin disorder can be treated by modulation of the immune system.

20 20. The method as claimed in claim 19, where the skin disorder is selected from the group consisting of alopecia areata (all clinical forms), psoriasis vulgaris (all clinical forms), atopic dermatitis, atopic eczema, neurodermatitis, polymorphic light eruption, erythema solaris, allergic and irritative contact eczema, drug rash and graft versus host disease.

30 21. A method for using an invasome as claimed in claim 1 for the therapy of a disorder which can be treated by modulation of the immune system, in particular for a prophylactic and/or therapeutic vaccination.

35 22. The method as claimed in claim 21, where the disorder is selected from the group consisting of an oncosis, a hyperplasia, a proliferative disorder, an arthritis, a viral disease, a bacterial and/or parasitic infection.

23. A method for using an invasome comprising a lipid mixture comprising one or more lipids and one or more lysophosphatides, where the proportion of lysophosphatides in the lipid mixture is in the range from 0.1 to 40% by weight, as 5 adjuvant and/or carrier system for antigens and/or other immunomodulating molecules in the treatment of a disorder which can be treated by modulation of the immune system.